

CP 2.4 Dried Blood Spot (DBS) Specimen Collection

See also Blood Collection on Filter Paper for NBS Programs (CLSI).

1. Specimens shall be collected from newborns at least 12 hours of age (**exception for transfusion of red blood cells** listed below), but should **ideally** be collected between 24 and 48 hours of age.
Collection prior to 12 hours can produce invalid results for some of the tests, e.g. false negative for PKU and other metabolic disorders, and false positive for primary congenital hypothyroidism and cystic fibrosis.
2. Specimens shall be collected no later than the end of the sixth (6th) day of age (144 hours of age).
3. Timing of specimen collection should never be determined by staff convenience.
4. If newborn is transferred to another facility on or before the 6th day of age, it is the responsibility of the receiving hospital to obtain specimen following above timing guidelines. The transferring hospital must complete a *Hospital Report of Newborn Screening Not Obtained (NBS-NO)* if newborn is transferred prior to specimen collection.
5. If newborn is not born in a licensed perinatal health facility, but is admitted to a facility within 6 days of age, specimen shall be collected following guidelines above if there is no evidence of collected specimen, e.g., collector's or parent's copy of TRF or form number; or verification by PCP or ASC/GDSP (by locating baby in SIS)
6. If newborn is not born in a licensed perinatal health facility and is admitted between six (6) days and thirty (30) days of age, specimen shall be collected within 48 hours of admission if there is no evidence (see above) of collected specimen.
7. If newborn is not born in or admitted to a licensed health facility after birth, it is the responsibility of the birth attendant or newborn's primary physician to obtain specimen between the second and sixth days of age (See Section 3.3 for Out-of-Hospital Births).
8. **If transfusion of red blood cells** (platelets, plasma, and albumin will not affect test results) is anticipated, specimen shall be collected prior to transfusion, even if newborn is under 12 hours of age. If neonate is less than 12 hours old at the time the pre-transfusion specimen is collected, a second specimen shall be collected between 24 hours after the end of the last transfusion and by the end of six (6) days of age when possible. If unable to collect a specimen by the sixth day because infant is critically ill or on continued transfusion, collect specimen as soon as possible after infant is stabilized.
The pre-transfusion specimen provides valid results for galactosemia and hemoglobin pattern; the second specimen provides valid results for other metabolic and endocrine disorders and cystic fibrosis.

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9. **Feeding** – Oral feeding does not affect NBS results. Total Parenteral Nutrition (TPN) may affect some of the results. If possible, the NBS specimen should be collected prior to initiation of TPN (if baby at least 12 hours of age) and at least 24 hours after the last TPN administration. In all cases the specimen should be collected by the end of the 6th day of age.

2.4 (Cont'd.) Dried Blood Spot (DBS) Specimen Collection

PROTOCOL:

| Resp. Person | Action |
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| Staff Person collecting specimen | <ul style="list-style-type: none"> • Obtains a Test Request Form (TRF) with specimen collection card attached, and completes demographic information accurately and legibly per instructions on last page of TRF. Uses capital letters with one character per box. • Avoids touching the filter paper on the specimen collection card at any time with gloved or ungloved hands (oil, lotion, or powder from hands or gloves can prevent blood from spreading evenly and thoroughly and may interfere with testing). • Checks that all information on the TRF is complete, correct, and matches the newborn's ID band. • Positions infant's foot to increase blood flow. Warming of the heel is optional, but may enhance flow. • Cleans the skin of newborn's heel with alcohol, wipes dry with sterile gauze or allows to air dry and punctures heel with a sterile disposable lancet or an automated lancet device (deep enough to reach the skin's primary blood supply, yet shallow enough to prevent heel or bone injury). If using an automated lancet device, places it firmly against the heel prior to device activation. • Allows a large drop of blood to accumulate. Wipes away first drop of blood with sterile gauze. Applies gentle pressure to heel and eases intermittently so that blood flows freely. Allows a second drop of blood to accumulate, then applies this drop to the circle on the top side of the specimen collection card. Repeats this procedure for each of the five (5) circles. Allows circles to fill by natural flow until completely filled (one drop per circle). • Avoids - <ol style="list-style-type: none"> 1. Repeated applications of blood to a circle or applying blood to both sides of paper - this will result in "layering" and an inadequate specimen. 2. Pressing collection paper against puncture site. 3. Capillary tubes to collect blood and spot on card as this may result in damage to the filter paper causing an inadequate specimen, and may produce an unreliable result. • Views both sides of filter paper to assure complete coverage of circles. • Detaches yellow "Sender's" copy of TRF and places in newborn's medical record. |

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| | <ul style="list-style-type: none">• Detaches pink “Parent’s Copy”, along with attached blue copy of GDSP Notice of Privacy Practices (NPP) and gives to parent. Instructs parent to show copy to newborn’s physician.• Air-dries specimen <u>thoroughly</u> (at least 3 hours) at room temperature on a “horizontally level, nonabsorbent, open surface” (CLSI). Drying vertically may cause pooling and result in an inadequate specimen. Avoids direct heat, lamps, sunlight and humidity.• Does Not -<ol style="list-style-type: none">1. Enclose TRF/specimen in a plastic bag.2. Allow wet specimens to come in contact with one another.3. Refrigerate specimens• Sends TRF/specimen and completed transport log to the testing NAPS lab as soon as possible and within 12 hours of collection, by GDSP-approved carrier.• If specimens are collected on a weekend or holiday when there is no specimen pick-up, specimens should be stored at room temperature (18° to 25° C) until pick-up on the next business day.• Encloses no more than 10 specimens in an envelope.• Does Not –<ol style="list-style-type: none">1. Hold and batch specimens from several days to send together.2. Store specimens in a hot place. It is important to avoid exposure to heat and humidity, so that if curbside mail collection boxes are used, care needs to be taken to deposit specimens close to time of pick-up, especially during hot summer months. |
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